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Baseline Analysis: American Class I Freight Railroads

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Abstract

After a decade of deregulation, the American railroading is a \$40 billion dollar industry. American Class I freight railroads account for \$30 billion in annual operating revenue. American Class I railroads can rightfully boast of a decade of success. Specialized contracts and price arrangements are now the norm. Alliances with drayage firms, innovative routings, cavernous new freight cars, new labor agreements, and promising technology are cutting operating costs. Equipment maintenance and maintenance-of-way efforts have remarkably improved the condition of the system's infrastructure and rolling fleet. The industry safety record has never been better. But doubts remain whether cutting below the line costs can save the industry. As the railroads, like their cousins the airlines, continue their consolidation into a handful of mega carriers, there remains a pressing need to improve system utilization and return on investment. The railroad industry needs a plan for growth. It needs to build value-added services that pay better margins.

This paper was prepared in support of the ICAF Truck and Railroad Defense Industry Study (DIS) Group to serve as a DIS primer on the railroad industry. It charts from 1980 the changing nature of the industry, identifies the players, points out the rules of the game, interprets the language, explains new marketing techniques and innovative services, and identifies performance trends. The paper concludes with an analysis of the relative financial health of the top seven American Class I freight railroads.

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The World of Pre-1980 American Railroading.

"Traditionally, we needed a trainload of business to run a train. Furthermore, we could rarely afford the luxury of initiating service and waiting for volume to grow. Sometimes the result was a real chicken-and-egg dilemma: no business, no service; and no service, no business."

Robert B. Claytor, Former Chairman of Norfolk Southern, Speaking before the American Trucking Association

Novelty. Innovation. Change. Excitement. Before 1980, these words would not have been normally associated with the American railroad industry. Bound in regulatory chains as a public utility by a bureaucratic, quasi-governmental agency, and a patchwork of federal and state laws, the railroads were off limits to business imagination and entrepreneurial energy. The nation's best and brightest business school graduates gave the railroads a wide berth.

Prior to the 1980's, railroads were the domain of insiders – railroaders who came in at the bottom as firemen, laborers, clerks or brakemen and worked their way up. The operations departments were king. Salesmen were order takers. Over time the core of our nation's logistics backbone retired from the marketplace. As the nation's highway systems improved and trucking state-of-the-art equipment became more powerful and capacity rich, the trucking industry grabbed more and more of the merchandise business. Shippers came to know that railroaders loved the mystique of railroading. They loved to run their trains – and railroaders cared little for marketing, customized service, and reliable freight transportation. From a railroader's point of view, the trains would be passing by. If merchants wanted to ship by train, so much the better. As the 1960's and 1970's passed, the railroads lost so much merchandise business that they were left to haul the nation's bulk-commodities. Lack of business forced many to combine with larger railroads. In 1970 there were 71 class I railroads – railroads earning over \$50 million dollars in annual gross revenues. By 1980, even with run away inflation pushing prices up in the late 1970s, there were only 39 left. By 1990, only 16 remained in business.

In the insulated land of regulated railroading, the railroads eventually paid the price for missing the country's growing appreciation for the importance of marketing, customer service, and client loyalty. Much of the blame can be laid on the government's inability to help the railroads change with the times. When the railroads attempted to work with special customers, to offer volume discounts, or to establish creative arrangements, they were often shut out by the Interstate Commerce Commission interpretations of the Interstate Commerce Act of 1887. The ICC gave the railroads little latitude. Rates were set by the commission and each railroad that served the same city pairs were bound to the same shipping rates. Rates were published in bulky tariff documents. Central planners in Moscow could not have done a better job to stifle competition, free enterprise, and creativity. In its years of case law the ICC clearly ruled entrepreneurial activities, such as entering special contracts with a specific shipper, against the law.¹

In the ICC world of frozen prices and inflexible routings and movement schedules, railroad salesmen could never offer prices lower than their competitors. The ICC left railroad salesmen to ask big volume shippers for their fair share of the business.

The ICC treated special contracts as revisions to the nation's tariff laws. If a railroad wanted to establish a special, one-time rate for a customer, the ICC required the railroad to petition the commission for a revision to the nation's tariff laws. Further, the ICC required that the railroad

give its other competing carriers – other railroads, truckers, and barge operators – 30 days to object at a public hearing. Needless to say, the railroads were locked in an endless cycle of petitions and debates. Meanwhile, more commodities, especially seasonal farm produce, moved to the growing long-haul trucking industry.

While the ICC regulations hindered railroad efforts to custom design price and service, these same regulations also thwarted railroad efforts to evolve. Railroads wanting to cut-off money losing routes were prohibited from doing so. The regulated railroads had to petition the ICC for permission to sell off or abandon routes. The cycles of public hearings and affidavits could draw out the process for years.

Two classic stories highlight the obstructionist behavior of the ICC and its calcifying effects on American railroading.

Today, 125-ton covered-hoppers are the car of choice for grain, coal, and mineral hauling. In 1962, 50-ton boxcars were the railroads' staple car. Loading and unloading burlap sacks of grain and minerals was hard work, expensive, and slow. In that year, the Southern Railway pioneered the first mammoth 100-ton covered-hopper. Affectionately called "Big John," this innovative hopper promised Southern Railway the opportunity to dramatically reduce its labor costs and to offer shippers volume discounts in the bargain. In accordance with ICC procedures, the railroad publicly petitioned the ICC for permission to use the new car and companion rate structure. Over the next four years, Southern persistently fought off objections from barge operators, other railroads, and even ICC investigators. Southern finally went to the Supreme Court and won a reversal to ICC rulings against the railroad. Southern's odyssey through the bureaucratic maze, public gauntlet, and legal puzzle palace is a worthy companion to any Greek heroic legend. Perhaps, if innovative pricing required heroic actions, mere mortals could be excused for seldom making the attempt.

In 1961, the New York Central did something remarkable – it established a marketing department. Until then, the New York Central, like most other railroads, had not been in the business of generating demand. NYC salesmen took shipping orders against the national ICC tariff base. NYC traffic clerks balanced the orders taken by the salesmen against the operating schedule maintained by the NYC operations department. To actually seek out shippers was a true novelty.

The NYC marketing department surveyed the railroad's operations and identified money-losing routes. It also came up with a plan to build business through volume guarantees and rate discounts to major shippers. This plan brought the NYC head to head against the ICC. This time there were no heroics. The railroads lost.

NYC petitioned the ICC for permission to set a volume discount for the shipment of rugs from Amsterdam, NY to Chicago. Unfortunately for American railroads, the ICC held that it was illegal for any railroad to enter into a special contract with a shipper. In a later ruling, the ICC

went on to hold that NYC's proposed penalty fee for late shipments was an "illegal rebate" under the terms of the Interstate Commerce Act of 1887.¹

While ICC rulings through the years locked the railroads into unprofitable enterprises, the Railway Labor Act of 1926 and a variety of special state laws also helped to build a wall around the industry. Arcane railroad labor laws and state regulations froze the industry into a system of unions, crew arrangements, work rules, and protocols that would go unchanged for years. Virginia finally repealed its caboose law in 1988.²

In 1980 the railroad industry emerged from its protective womb to a world of relative independence. The 1980 Staggers Deregulation Act challenged the industry to dare. It empowered the railroads with the authority to market their services in a competitive market. For the first time railroads were free to design price structures and customize services without substantial government intervention.^{4 5}

Focus of This Paper

After a decade of deregulation, the American Class I railroads can boast of a \$40 billion dollar industry. Specialized contracts and price arrangements are now the norm. Alliances with drayage firms, innovative routings, cavernous new freight cars, and promising technology are cutting operating costs. Equipment maintenance and maintenance-of-way efforts have remarkably improved the condition of the system's infrastructure and rolling fleet. The industry safety record has never been better. But doubts remain whether cutting below the line costs can save the industry. As the railroads, like their cousins the airlines, continue their consolidation into a handful of mega carriers, there remains a pressing need to improve system utilization and return on investment. The railroad industry needs a plan for growth. It needs to build value-added services that pay better margins.

To prepare the ICAF Railroad Defense Industry Study group, this paper will offer a DIS primer on the railroad industry. It will chart from 1980 the changing nature of the industry, identify the players, point out the rules of the game, interpret the language, explain new marketing techniques and innovative services, and identify performance trends. Finally, it will compare the dominant class I railroads and analyze their relative financial health.

Industry Structure

"If you look at the number of ton-miles that were generated last year and the number of cars in the fleet, you'll see that there are levels of utilization that five or ten years ago people just didn't expect could happen."

Railroad Consultant

"Guilford has lost workers, track, freight, revenue, and above all - goodwill, by betting the railroad in a bold bid to streamline the company."

Columnist for New England Business

Long and Short Lines

Railroading is Big Business. A major railroad such as CONRAIL owns over \$6 billion in assets. Imagine a mile long train, loaded with containers stacked two high, easing its way over the continental divide. The engineer controls the power of three 4,000 horsepower engines. At his engine console the engineer sees a computer generated map of the route before him, reads electronic messages from his dispatcher, and monitors his computer's recommendation for speed, braking and engine settings. Imagine the thousands of technical workers and skills needed to keep that train in action - to maintain thousands of miles of track and right-of-ways, thousands of cars and engines, hundreds of distribution sites, and countless bridges, road crossings and tunnels. Imagine the millions of dollars needed to invest in electronic nerve centers that can track train movements throughout a national network of track, sidings and yards.

Railroading is also dozens of regional railroads. Many, like the Wisconsin Central, were carved out of dying class I railroads, often through leveraged buyouts, by men with a dream to keep railroading alive. These railroads serve specific parts of the country and are often tied to the fortunes of dominating industries such as paper, chemicals, and minerals. They employ hundreds of employees, are often closer to the customer, and have become the nation's testbed for flexible work-rules and operating practices and new ideas towards marketing and customer service.

Finally, American railroading is hundreds of short-line railroads like the Winchester and Western. These small railroads, some owning only a few miles of track, a few hand-me-down engines and a dozen or so cars, link small communities, farmers cooperatives, or several industries with the class I mainline routes.

Class I Railroads

The American railroad industry is home for over 500 railroads. Only those that earn over \$50 million in gross revenues annually have been designated Class I railroads by the Interstate Commerce Commission. On December 31, 1989 only 16 Class I railroads were left and several were the targets of mergers and buy-outs. According to the ICC, Class I railroads carried 97 percent of the nation's railroad freight ton-miles, operated 92 percent of the nation's railroad mileage, and employed 94% of all railroad employees.

The Major Players

"Railroads today must compete for business which is 'trucklike', if I may coin a word. The business is time-sensitive, loss-and-damage sensitive, and high value. We want to move it by rail, but to get it, we have to sell and operate like a truck company. This is a tall order for a railroad. After all, we have done things very differently for 150 years."

Robert B. Claytor, Former Chairman of Norfolk Southern, Speaking before the American Trucking Association

For all practical purposes, the American railroad industry is the domain of seven companies:

Atchison, Topeka & Santa Fe Railway Company
Burlington Northern Railroad Company
Consolidated Rail Corporation
CSX Transportation, Inc.
Norfolk Southern
Southern Pacific Transportation Company
Union Pacific Railroad Company

American railroading, from the smallest trunk carrier to the mighty class I railroads is a \$40 billion dollar industry. Among the hundreds of American railroad companies, seven companies generate over 70% of the total industry revenue. As figure (1) reveals, Burlington Northern, Union Pacific, CSX, and Norfolk Southern shared the bulk of class I revenues in 1990. Union Pacific and CSX had the boldest increase in industry revenues since 1986. The trend industrywide has been positive since the 1982 recession. Since the Staggers Deregulation Act was passed in 1980, the railroads have been free to set prices, design customized services and become competitive in the marketplace. Intermodal transport – the movement of trailers or containers on railroad flatcar – has generated most of the marketing excitement in the industry, generating 6.2M in revenues in 1991. Innovative marketing practices and

rolling stock, once considered inappropriate by the Interstate Commerce Commission, are now the basis for the industry. New attempts to marshall technology – especially the use of electronic telecommunications and computer networks to pinpoint the exact location of a customer's shipment – have made the railroads more service oriented and customer friendly. Railroads still remain captive to national economic trends. As the industries served by the railroads face economic slowdowns, the effect is quickly seen in the railroads rail car load statistics.

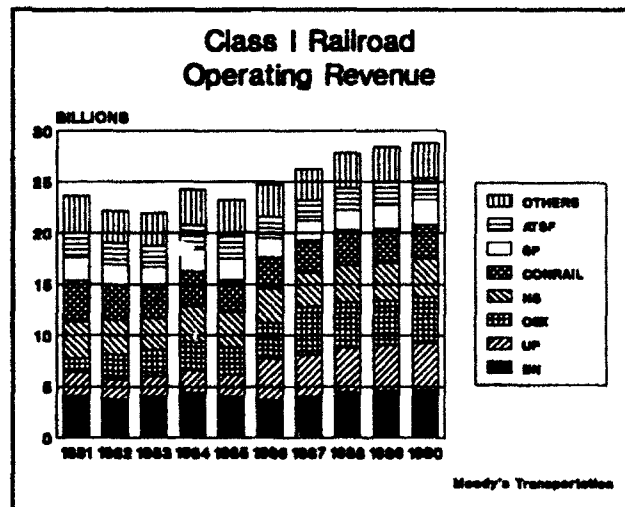


Figure 1

Railroaders have been criticized in the past that they were more interested in running their trains than in customer service. But the key to any company's survival is its ability to consistently turn a profit. In the railroad industry, making money does not come easily. Figure (2) shows that turning a profit has been elusive for some, but routine for others. Industry-wide, the railroads combined to earn slightly less than \$3 billion dollars in 1990. Among the class I railroads, Union Pacific, CSX, and Norfolk Southern have been the big money earners, taking in over half of the income for the entire industry! The Union Pacific story has been most remarkable. Having had modest annual incomes for years, UP's earnings exploded upward since 1987 as UP rushed to change work rules and introduce automation. Most class I railroads launched into the 1980's with innovations in operations. Most of these were targeted to make the trains run more efficiently, to arrive on time, and to minimize damaged goods. New equipment was introduced to lower equipment maintenance costs and to increase car load weights. Negotiations with labor reduced crew sizes. Most also began a serious introspection, to evaluate which routes were unprofitable, to decide just what kind of railroad they wanted to be. In the end, the railroads that concentrated on cutting off marginal operations instead of stimulating sales found their enterprises disappearing. As David Hughes, president of the Bangor & Aroostook acknowledged before his peers in 1988, *"If management makes the next round of workforce reductions and sells the next regional spinoff and abandons the next line and cuts off the next train, will it have produced sustainable growth for its stockholders, improved service to customers or created any new business opportunities?...It is clear that what we have done in the past has not worked."*

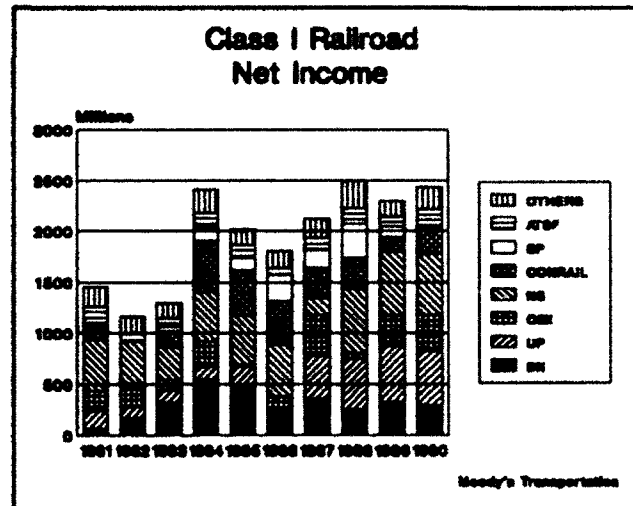


Figure 2

The bitter truth for American railroads is that they are running far under capacity. Most small and regional railroads are indifferent performers. Whether small or large, the successful companies have shed their traditional monolithic, top-heavy bureaucracies. They have moved through electronics to streamline management and to empower conductors and other line managers to make decisions on the spot. They are forcing costs down. The top seven are succeeding.

Burlington Northern

"To assure success as the 21st Century approaches, we have undertaken an effort to better define BN's future. A thorough reexamination of BN from the rails up has been initiated, beginning with our customers. What components of the business should be grown or reduced? What new markets should BN serve, and what are the best ways to serve them? How should BN be organized to take the greatest advantage of its inherent strengths?"

Burlington Northern, CEO Letter to Shareholders, February 1990

Burlington Northern is the nation's largest railroad. It spans the country through 25 states. Its tracks lead from Seattle to Chicago to Houston and to Mobile. With its 25,000 miles of track, BN services the grain producing regions of the Midwest and Great Plains, the rich timber lands of the Pacific Northwest, and the vast coal deposits of Montana and Wyoming. It is a conduit for intermodal traffic to and from the ports of Seattle, Tacoma, Galveston and Houston into the American midwest. In 1992, BN will begin integrated barge service to Mexico to serve the growing Mexico-USA trade partnership. BN 108 car trains will leave the Midwest with grain and will be lifted by barge out of Galveston to the Mexican ports of Altamira, Veracruz or Coatzacoalcas. From there the cars will travel on the Ferrocarriles Nacionales de Mexico (FNM), the Mexican government owned railroad. BN predicts that this new service will send more American grain to Mexico and return with fresh fruits and vegetables and autoparts.

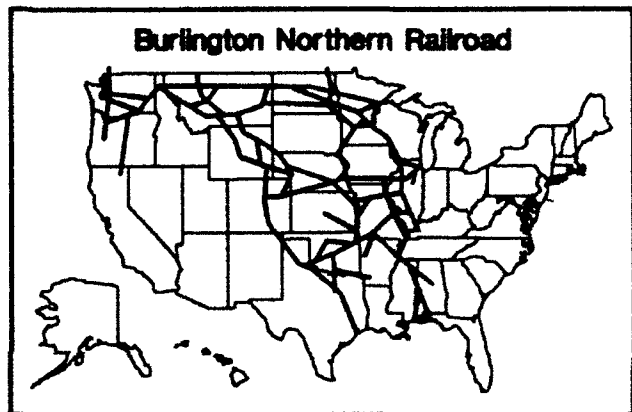


Figure 3

Burlington Northern was incorporated as the Great Northern Pacific & Burlington Lines in 1961. It changed its name to Burlington Northern in 1970. As figure (4) shows, the modern BN is what is left of the legendary railroads that served the American northern tier from Chicago to Seattle. By 1970 BN already owned trackage rights to Houston and Galveston. In 1980, BN completed its expansion by merging the St Louis-San Francisco Railway Company [The FRISCO] into its system. BN's is divided into five operating regions with headquarters in Springfield, Missouri; Chicago; St. Paul; Denver; and Seattle. BN corporate headquarters is in Fort Worth, Texas.

Burlington Northern From Northwest to Deep South

Chicago, Burlington & Quincy
Fort Worth & Denver
Colorado & Southern
Great Northern
Northern Pacific
Spokane, Portland & Seattle
The Frisco

Figure 4

Conrail

"Marketing is too important to be left to marketing people."
CONRAIL Senior VP for Marketing

The Consolidated Rail Corporation – better known as CONRAIL – serves the Nation's 15 northeast and Midwest states. CONRAIL is one of the largest haulers of auto parts and finished automobiles. With port coverage from Baltimore, Philadelphia, northern New Jersey, New York, and Boston, CONRAIL led the nation in intermodal freight up until 1988. Since then it has fallen into third place behind Santa Fe and Burlington Northern. CONRAIL was the first class I railroad to develop Just-in-Time parts delivery services for automobile plants. CONRAIL has aggressively sought out partnerships with the numerous short and regional railroads that remain in the industrialized Northeast and Midwest. These strategic alliances form a deep transportation market with short lines serving as feeder carriers to CONRAIL. With its auto, steel, and merchandise orientation, CONRAIL's traffic mix has made it vulnerable to recessions in the industrial sectors of the economy.

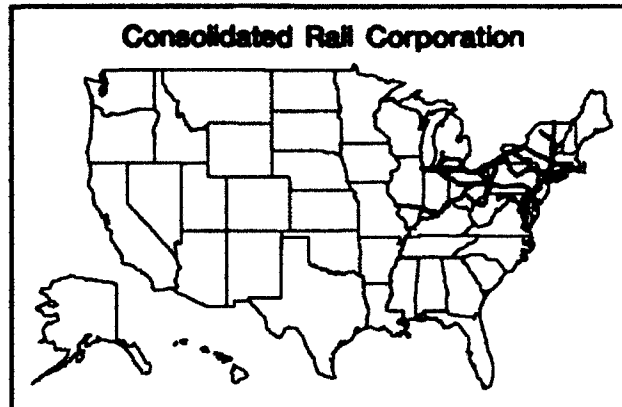


Figure 5

CONRAIL was formed in 1976 out of the remains of the failed Penn Central system. Since then, other regionals, such as most recently the Monongahela, have been acquired. Many of these lines were in bankruptcy. Until 1987, the government held a 85% stake in CONRAIL. Even though CONRAIL made its first profit in 1981 and has been profitable since, the government tried to sell the CONRAIL system to Norfolk Southern in 1987. After a public and congressional attack on this proposal, the government floated its share on the open market and realized \$1.65 billion dollars. CONRAIL has been a publicly held company since then and has consistently returned a profit and shareholder dividends. CONRAIL is organized into six divisions headquartered in Dearborn, Michigan; Harrisburg, Pennsylvania; Indianapolis; Philadelphia; Pittsburgh; and Selkirk, New York. CONRAIL corporate headquarters is Philadelphia, Pennsylvania.

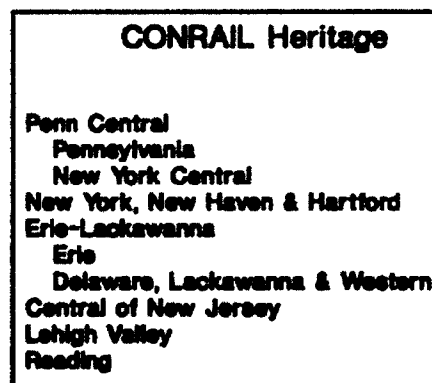


Figure 6

CSX Transportation

"The reduction in fuel consumption is enormous. The tests also proved that while the maximum authorized speed is being reduced significantly, the average train speeds will be reduced by much less, and in some cases, not at all."

CSXT Senior VP for Transportation

CSX Transportation controls nearly 20,000 miles of track through 20 states. Its vast network seemingly blankets the southeast and extends from Florida up to Philadelphia and west to Chicago, St Louis, and New Orleans. CSXT is commodity oriented. Bulk lifts of coal, minerals, food stuffs, and timber dominate the system. With a strong presence in West Virginia and eastern Kentucky, coal lifts make up one-third of CSX revenues. With only a strong port presence in Baltimore and Charleston, South Carolina, CSXT ranks seventh in intermodal traffic. Most of its intermodal traffic is north-south from Chicago to its south-east center in Atlanta. With increasing automation and sophisticated system traffic modeling, CSX has led the industry in the study of train pacing. CSX has found constant slower speeds that reduce the dash and stop movement patterns of typical long haul freights, cost little travel time, and save in fuel and productivity.

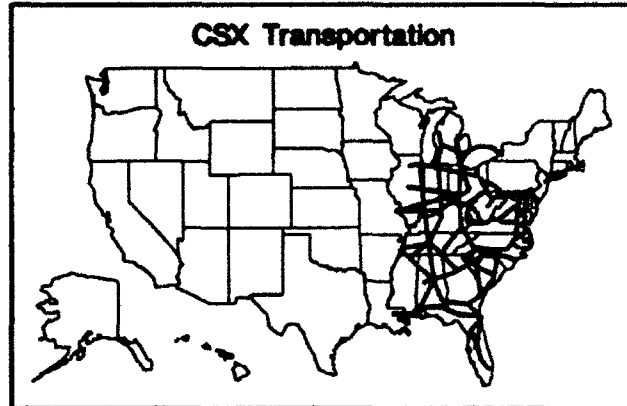


Figure 7

CSX Transportation was formed in 1980 with the merger of the Chessie System and Seaboard Coast line. Each of these networks grew during the 1960s' and the 1970s' from the consolidation of some of the oldest railroads in the country. Unique among its competitors, CSXT is organized around three business units – all located in Jacksonville, Florida. CSX Equipment manages the system's rolling stock maintenance and overhaul program. CSX Rail Transport manages the mainlines, yards, locomotives, and operations facilities and controls train service throughout the network. Its "Jacksonville Super Center" is a state-of-the-art automated central traffic control system. CSX Distribution Services is the company's face to the customer. This organization handles sales, marketing, billing, and other customer service functions.

Roots of CSX

Chessie System
Baltimore & Ohio
Chesapeake & Ohio
Pere Marquette
Western Maryland

Family Lines
Seaboard Coast Line
Seaboard Air Line
Atlantic Coast Line
Louisville & Nashville
Nashville, Chattanooga & St Louis
Monon
Chicago & East Illinois
Richmond, Fredericksburg & Potomac
Cincinnati

Figure 8

Norfolk Southern

"Successful disposition of rail lines that carried inadequate volumes of system traffic, ongoing reductions in employment levels, continuing improvements in employee safety, further reductions in damage to cargo and implementation of other cost-reduction and cost-containment measures contributed to an operating ratio (the percentage of operating income that goes into operating the railroad) that was...the best among the major carriers."

CEO & President Letter to Stockholders, Jan 1991

Norfolk Southern is a holding company. It controls the Norfolk and Western Railroad and the Southern Railway Company. The two railroads are operated as a combined system that extends from the Midwest to the Southeast. Like its cousin, CSXT, Norfolk Southern gains substantial revenue from coal hauling from the fields of West Virginia to the ports of Newport News and Norfolk. Unique to NS is its "Triple Crown" Road Railer Service. Unlike intermodal systems that load trailers or containers onto flatcars for transshipment, Road Railers are 48' and 54' trailers fitted with a set of extendable steel wheels. The trailers are linked together behind the engine to form a unit train and travel on the rails like a regular railroad cars. On arrival, the trailers are disconnected and pulled away by regular truck tractors. NS owns 1,600 road railer trailers.

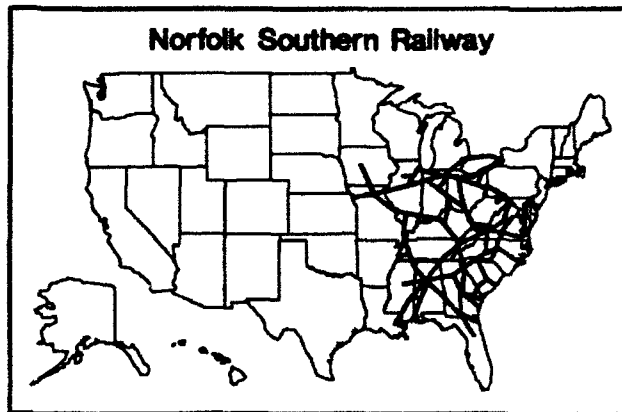


Figure 9

Norfolk Southern's 14,700 miles of main line track became a unified system in 1982 when the ICC approved the merger of the Norfolk and Western Railway Company and the Southern Railway Company. Each company has its roots in American Class I railroading. With a taste of nostalgia, NS regularly runs two steam engines and excursion trains across its system during Spring, Summer, and Fall for railfan excursions. Based in Roanoke, the engines are both registered national landmarks. This widely acclaimed program has stimulated a renewed interest in steam locomotives and has generated considerable goodwill for Norfolk Southern in the bargain. Norfolk Southern's corporate headquarters is in Norfolk, Virginia.

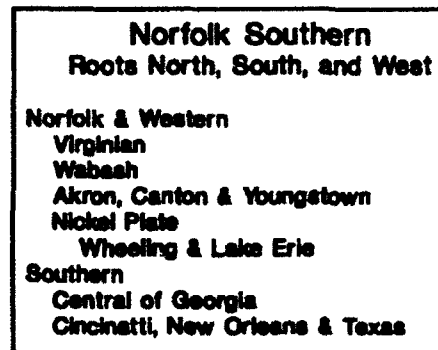


Figure 10

Atchison, Topeka and Santa Fe Railway Company (Santa Fe Railway)

*"If Santa Fe does not manage intermodal so it produces an adequate return, then we will not survive."
Santa Fe President and CEO*

Santa Fe has established itself as America's intermodal giant. with over 30 percent of its revenue obtained through intermodal traffic, ATSF has made an aggressive assault on the marketplace. In 1991, ATSF went ahead of Burlington Northern to take first place in intermodal traffic. With routes from Chicago west to the Pacific and south to the Gulf of Mexico and onward into Mexico proper, ATSF has linked its future to the growth of the export/import trade. With its dedicated intermodal service to Mexico City and along the border districts, ATSF has become a major niche player that hopes to benefit from the North American Trade Agreement. System downsizing has left ATSF with many redundant personnel, however. Unlike most of the other major railroads, ATSF has been unable to reach agreement with its unions and is expected to go to binding arbitration to relax work restrictions.

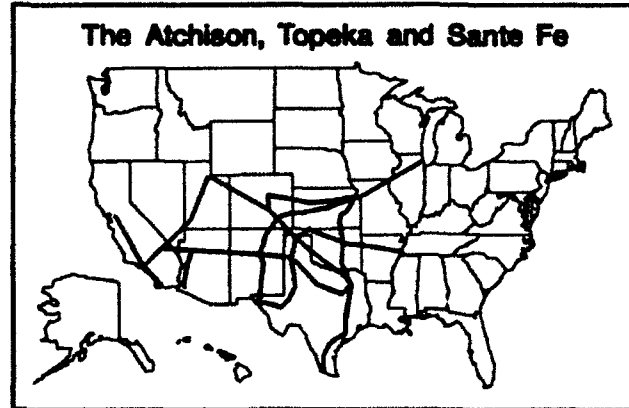


Figure 11

Southern Pacific

Southern Pacific is going head-to-head against Santa Fe in the southern California to Mexico intermodal run and has teamed with Burlington Northern to link Chicago intermodal service to the Pacific. This alliance placed Southern Pacific second in the intermodal revenue contest behind Santa Fe. Ironically, Southern Pacific and Santa Fe petitioned the ICC for permission to merge in 1986. The ICC denied the request to promote competition in the Southwest. Rio Grande Industries then purchased SP in 1987. The Southern Pacific and Rio Grande Railroad combination forged a 15,000 mile network from Los Angeles north to Portland and east to Kansas City.

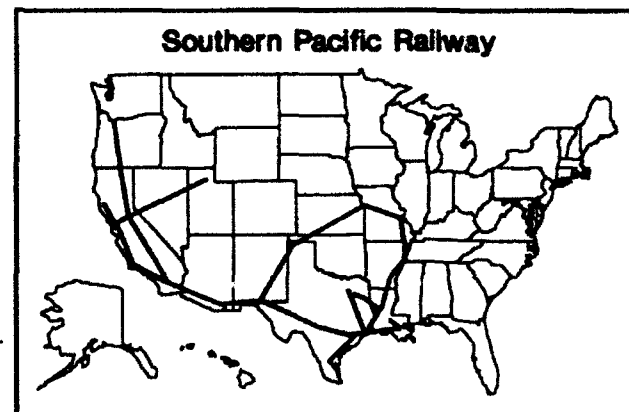


Figure 12

Union Pacific

"Technology is at the heart of any company's future. It is the necessary prelude to streamlining every operation and reducing any cost. It is one of the few ways a company can leap over its competition by improving productivity and enhancing customer service. In sum, it works for a company even if the economy sours."

CEO Letter to Shareholders, 1990

The second largest railroad in the United States, Union Pacific packs a performance punch second only to Norfolk Southern. With a route of over 22,000 miles, UP bridges the Pacific Northwest to the high plains, on to Chicago, and south to the Gulf of Mexico. Like Burlington Northern, UP is a major presence in the Montana and Wyoming coal fields with coal accounting for 30% of the railroad's 1989 ton-miles and 17.4% of its revenue. UP is not a major player in intermodal traffic but that could change. UP is an industry leader in the use of technology in all facets of railroading. It pioneered satellite train tracking and advanced automated track control. UP boldly placed a computer in every engine cab to empower conductors to make traffic decisions on the spot without petitioning higher authorities.

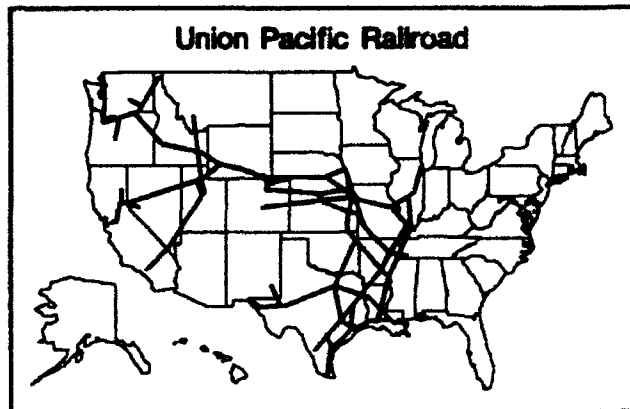


Figure 13

The Union Pacific Railroad has been at the heart of American railroading since laying its first track in 1865 near Omaha. Today, UP has centralized operations and marketing in Omaha. In a departure from the norm, the Marketing and Sales Department is organized into three sections: top 200 customers, other medium to large customers, and others. A telemarketing process has also been established to solicit new business. Where the Operations Department once had nine layers of management, it now is structured out of Omaha with only four. To flatten the organization, 30 regional superintendents control operations closer to the customers.

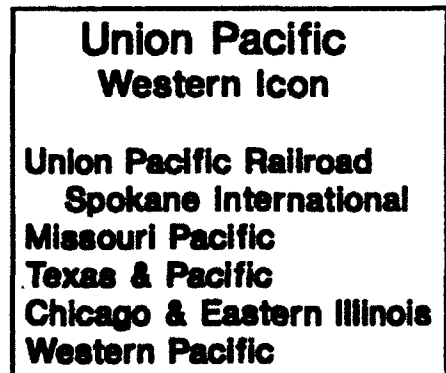


Figure 14

Rolling Stock: Users, Buyers, and Builders

"You should keep in mind that while we operate in a dynamic marketplace, changes in this industry are most often evolutionary rather than revolutionary."

Chief Financial Officer, Car Leasing Company

According to the Association of American Railroads, 1,197,419 freight cars were at work on June 1, 1991. Surprisingly, the class I railroads owned only 645,090. Regional and shortline railroads possessed 99,230 freight cars, mostly boxcars, hopper cars and gondolas. Private companies controlled 453,059. Railcar life can easily exceed twenty years. With the final class I railroad consolidations in the '70s, many older cars were retired. New cars have tended to be specialized and large. Coal hoppers today can carry 125 gross tons. Mammoth articulated hopper coals, now under development, will significantly expand coal and grain car capacity. Aluminum cars that weigh less and can therefore carry more are entering service in increasing numbers as the railroaders retire smaller and older steel cars. Although the total number of freight cars in service has been slowly decreasing, private car ownership of the national railway fleet grew through the '80s and '90s.⁷

Private car owners include leading bulk shippers, such as chemical companies, and utilities. Several coal based electric utilities, such as Oklahoma Gas & Electric, own their own fleet of hopper cars to ensure an availability of coal during the peak traffic months.

Private ownership also includes railcar rental companies. Itel, U.S. Leasing, TTX – formerly Trailer Train, and TTX subsidiaries Railbox and Railgon are major car-for-hire players. Itel owns 72,000 freight cars. One-third are boxcars and one-third are covered hoppers. The balance is a mix of lumber cars, tank cars and intermodal platforms. Many of these are leased to regional railroads. U.S. Leasing, a Ford Motor Company subsidiary, leases tank cars, plastic pellet cars, and grain hoppers. Once again, regional railroads are primary customers.⁸

TTX is unique in that this company is actually owned by the railroads. It operates under a Pooling Agreement approved by the Interstate Commerce Commission. The agreement will remain in force until 1995. TTX manages a national pool of flatcars used by the railroads for intermodal shipping platforms. Railbox and Railgon, as their names imply, similarly provide pools of boxcars and gondolas respectively. Instead of paying out

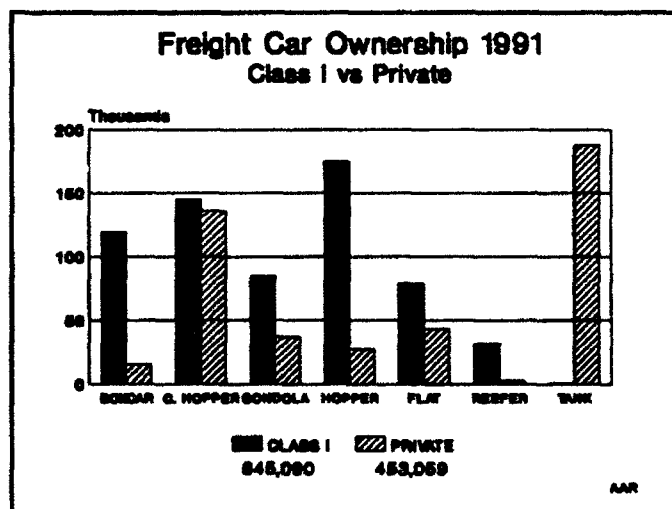


Figure 15

dividends, TTX keeps its lease rates low for the railroads. In 1990, TTX enjoyed record revenues of \$600 million, with net earnings above \$50 million.⁹

Today's railcar lease companies are the survivors. In the '70s, encouraging government and industry estimates for railcars and favorable tax incentives stimulated overbuilding. In the early '80s, the shortages became surpluses. Many car leasing companies sold off their fleets at a loss.

The salad days of the railcar builders also passed in the 1970's, but during 1990 and 1991 the car builders saw their business improve. During the first nine months of 1991, 25,748 new railcars were delivered to class I, regional, and small railroads, private shippers, utilities, and car leasing companies. The backlog of undelivered cars totaled 9,923 on October 1, 1991.¹⁰

With business off, only four major railcar manufacturers remain in the United States: Johnstown America Corp, Gunderson, Trinity Industries, and Thrall. Johnstown America Corp., formally the Bethlehem Steel Freight Car Division, employees 1000 employees and had revenues nearing \$200 million in 1990. The company is now a subsidiary of TMB Industries of Chicago and the Onex Corp. of Toronto. Johnstown America has constructed over 10,000 aluminum-bodied "BethGon Coalporters."¹¹

Greenbrier Companies, and its Gunderson subsidiary, actively remanufacture and build new a variety of freight cars. Trinity Industries Rail Car Division manufactures the "Aluminator" 3,950 cubic-foot-capacity aluminum tub coal hopper at its Greenville, PA. plant east of Youngstown, OH. Thrall Car, along with Gunderson, have cornered the market for the building of intermodal equipment, including double stack well cars, heavy-lift flat cars, articulated spine cars. Thrall has also been a major producer of covered bi-level automobile carriers and is said to be designing an articulated autorack car.

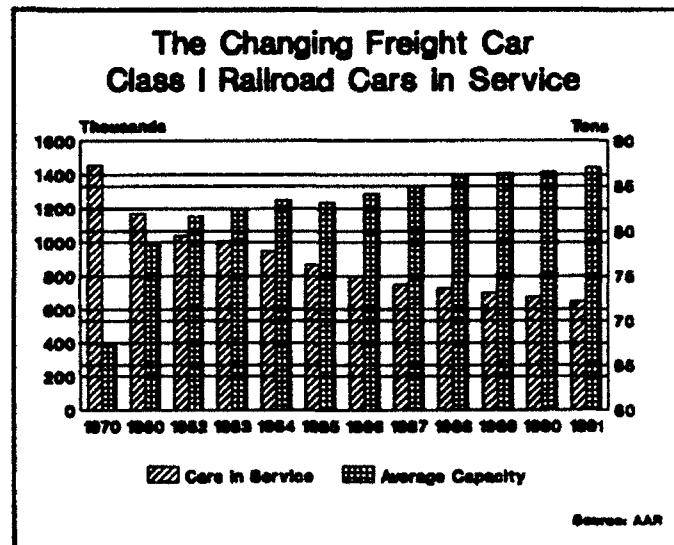


Figure 16

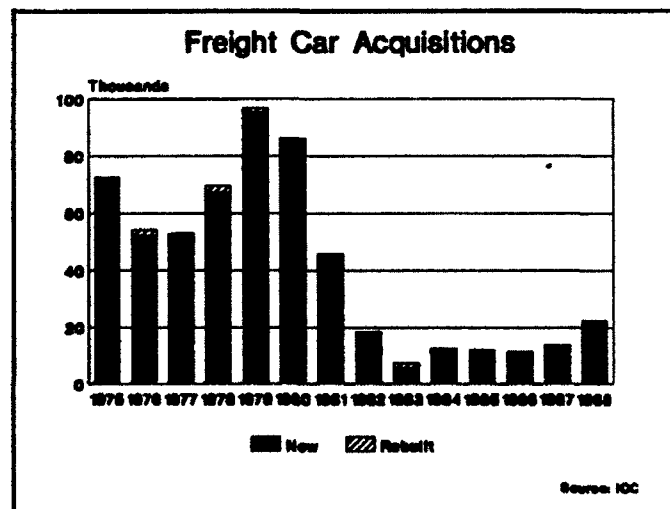


Figure 17

Locomotives: Manufacturers, Products, and Costs

"Because we saw and satisfied ourselves that your quality and reliability were at a level which, we believe, challenges your competitor, we picked GE. But this decision is not forever. How these units operate, and the forthcoming improvements that they will have, will dictate the level of reorder business we give GE."

Railroad CEO speech on the purchase of the first GE engine in over 20 years.

"with 4900-gallon fuel tanks, the locomotives hold 20 to 40 percent more fuel than older units. The larger tanks enable the units to make a loop between Kentucky and Florida without immediate refueling."

CSX Corp Quarterly Report Jun 89

Railroad equipment seems to last forever. With proper care, Norfolk Southern operates old steam powered war horses on exhibition runs around the country. On the rails of small railroads and even in the yards of the Class I railroads 35 year old GP9 road switchers are still at work. Experts believe that over 50% of all locomotives at work in the United States were built prior to 1975.

On rails adjacent to the famed CONRAIL Juniata workshops in Altoona and at locations on class I railroads around the country, hundreds of mainline engines and yard switchers are sitting idly on sidings. Over 10% of the Class I motor power is thought to be in storage. Many of these have been retired for good. The lucky ones will find cushy homes in railroad museums around the country. Most will meet their day with the cutter's torch. Others are waiting for business to pick up so they will be needed once again.

While the lowly 1800 horsepower GP9 was hot stuff in its day, mammoth SD60 and DASH-8 locomotives now can do the work of three or four GP9s, run faster, operate longer between

refuelings and maintenance sessions, and surround the operator in safety and comfort.

General Electric (Erie, Pennsylvania) and General Motors Electro Motive Division (London, Ontario and LaGrange, Indiana) dominate the new engine market in North America and maintain a strong presence in the export markets. Other new comers, such as Morrison-Knudsen (Boise, Idaho and Mountain Top, Pennsylvania), have established themselves as important remanufacturers of older engines.

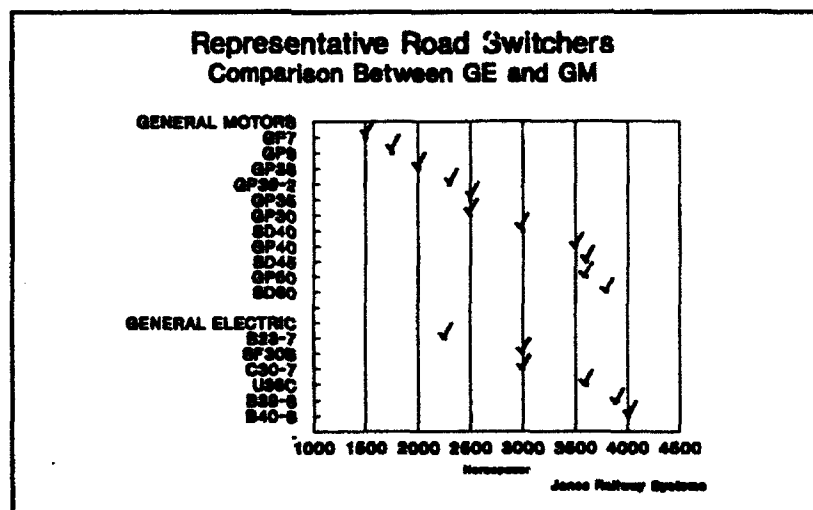


Figure 18

As ton-miles go up in the railroad industry, the number of locomotives keeps going down.

Only the largest engines, the 3800 horsepower EMD SD-60 and the 4000 horsepower GE B40-8 models are in full production. Railroads are retiring three older second generation SD-38/40 locomotives for every two new engines. SD-60 models are geared for 50mph. With its 100,000 pounds of traction power, it is a favorite for coal and other heavy freight lifts. The GE C40-8, commonly known simply as the "Dash-8," is geared for 70 mph. With its enormous fuel capacity - up to 5000 gallons on some models - it excels in long distance, rapid overland intermodal routes. Each sells for around one million dollars.¹²

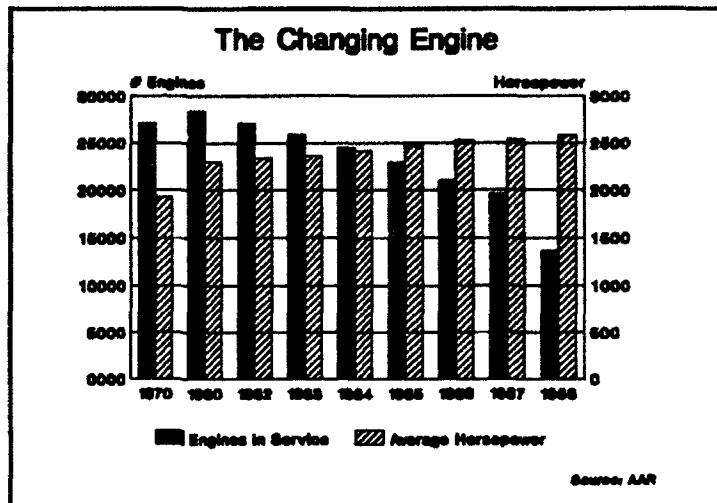


Figure 19

For years, General Motors Electro Motive Division (EMD) built its engines at La Grange, Indiana. When the Canadian railroads began to transition from steam to diesel power in the 1960's, EMD opened its London, Ontario plant to produce locomotives for the Canadian market and to avoid Canadian import taxes. At the time, the EMD employees joked that the London, Ontario plant could fit in the parking lot of the La Grange, Indiana complex. In the 1970's the rush to enter more and powerful second generation diesels into the world market generated an unequalled surge in production at the London site. Today, the La Grange plant manufactures smaller passenger engines as well as the diesel engines that go into EMD locomotives. All EMD freight power is now produced in Canada. General Electric, which had produced small yard and industrial switchers and several electric powered locomotives over the years, introduced its

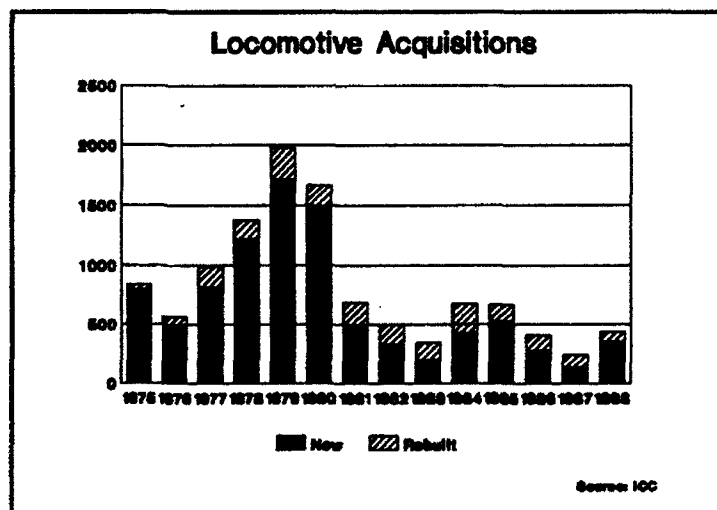


Figure 20

first mainline diesel in the early 1970s. In 1990 GE sold 356 Dash-8 engines; EMD sold 269 SD-60 units. MK remanufactured 150 units in the same year.^{13 14}

During the steam era, many railroads made their own locomotives in extensive engine manufacturing and rework facilities. Over the years as railroads faded into history or found that they needed fewer engines to haul larger loads, many of these facilities became redundant. Many, like the Western Maryland Railroad Industrial facility in Hagerstown, Maryland were abandoned. They stand today like ghost towns. Others were saved from the wrecking ball. During the 1980's several railroads sold off excess repair shops. Investors in several towns, however, purchased the shops and are today still in business. The old Illinois Central sold its Paducah, Kentucky engine shops to VMV Industries which now is a major rework and engine maintenance provider for small and regional railroads. Likewise, Burlington Northern's former engine repair facility at Livingston, Montana, and Santa Fe's Cleburne, Texas Railway Shops were sold to local private interests. Meanwhile, in an attempt to improve the asset utilization of its extensive repair facilities, CONRAIL has begun to offer repair and rework services out of its Juniata shops in Altoona, Pennsylvania to private, shortline, and regional railroads.¹⁵

Today's super locomotives are made and sold differently than their second generation predecessors. Computers now monitor and at times control the SD-60 and Dash-8 operation. The GE Diagnostic Display Panel senses for engine abnormalities, determines whether engine problems are serious enough to jeopardize continued operations, and logs in maintenance problems that can be deferred. Artificial intelligence profiles the best fuel and engine settings for certain conditions and control acceleration and braking. On the EMD SD-60, the diagnostic control system tracks the diesel engine, traction power, dynamic brakes and various mechanical systems for faults and out-of-tolerance operations.¹⁶

When Union Pacific recently purchased 50 SD-60 units, EMD warrantied their units by providing UP with another 6 reserve units. Likewise, GE backed up UP's 65 Dash-8 engines with 6 free insurance units. UP expects to retire three SD-40 models for every two SD-60 and Dash-8 engines placed in service.

Industry Trends

US Freight Ton-Miles and Gross Domestic Product

"First, railroads must begin to care. Don't promise productivity - provide it. It doesn't say you have to get there real fast. You just have to get there when you say you'll get there."

SP Senior VP for Intermodal Business Development

A "ton-mile" is the US standard measure of transportation output. A ton-mile is one measurement ton, roughly a four foot cube, of freight moved a mile. This volumetric measurement is a handy gauge to compare the bulk movements through various transportation channels. What it does not measure is the relative value of the freight in transit. A measurement ton of coal is the same as a measurement ton of diamonds, plastic pellets, auto parts, or grain. Yet each would demand different transportation costs and return various profits to the carrier.

The figures that follow will show how the aggregate transportation industry productive output has not kept pace with GDP growth. The news is not all bad, however, as America's class I railroads have posted record revenue ton-miles in the closing years of the 1980's.

The first figure in this section compares the twenty year growth in US freight ton-miles for all forms of transportation to the nation's GDP. Note how ton-miles tracks with GDP. Obvious declines in revenue freight traffic marked GDP down turns, such as the recessions of 1975 and 1982. What is interesting, however, is how freight traffic in all forms failed to keep pace with GDP growth since 1982. As the transportation industry services the manufacturing, agriculture and retail segments of our economy, GDP growth more than transportation output maybe attributable to service industry expansion. If so, then a measure of freight industry ton-miles vs GDP should be a barometer for measuring the relative health of our domestic farm, blue collar, and retail trades.

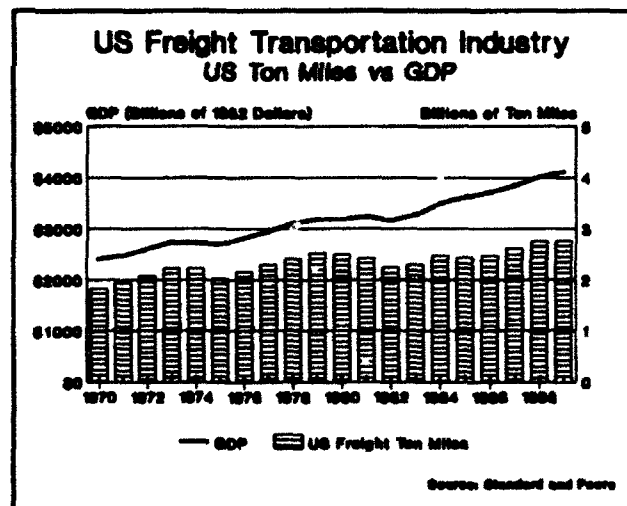


Figure 21

The transportation industry combines the resources of five shipment modes:

Rail	Small, regional, and class I railroads
Trucking	Independent operators and local, regional and national common carriers
Water	River barge service, Great Lakes and intracoastal traffic
Oil Pipeline	Private and public service pipeline distribution systems
Air	Airline and air freight carriers

Of special interest to railroaders is whether railroading has lead, paced, or fallen behind the industry ton-mileage trend. Unfortunately, the next figure does not paint an optimistic picture.

Through the 1980's, first with the introduction of the Staggers Act of 1980 to deregulate the railroads and then with the 1984 trucking industry deregulation, transportation industry-wide ton-miles grew ten percent. Trucking led with a seventeen percent ton-mileage growth while railroads kept pace at ten percent. Water and pipeline service growth remained flat through the decade. Air freight service blossomed but in terms of ton-miles, air freight was insignificant.

Ironically, during the regulated 1970's, the transportation industry output grew thirty-nine percent. In the 1970's, oil pipeline services led the pack with a fifty percent ton-miles growth curve. Trucking ton-miles measured a forty percent improvement while railroad ton-miles grew at a twenty percent pace.

The figures above have shown how the output of all railroads have not kept pace with the economy at large. The final indicator in this section is how class I railroads ton miles have compared to GDP growth since 1970.

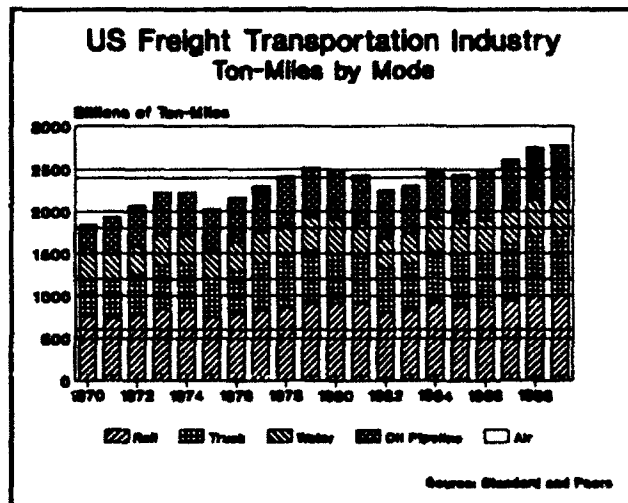


Figure 22

The decade of the 1970s' saw many regional and class I railroads face bankruptcy. The specter of an industry in ruin, kept on life support by intravenous feeding of federal dollars, moderated Washington attitudes toward railroad regulatory and union work rule constraints. The good news is that railroad regulatory reform legislation and the final consolidation of the American class I railroads into the seven major carriers has begun to pay off. Since the 1982 recession, class I railroad ton-miles increased by twenty-five percent. This rate significantly outraced the transportation industry at large and, more importantly, exceeded GDP improvement during the same period. Wall street analysts predict that the class I railroad's 1989 record 1.043 trillion ton-miles will be broken in 1992. Bullish predictions for 1.050 trillion revenue freight ton-miles in 1992 have kept class I railroad stocks at all time trading highs.¹⁷

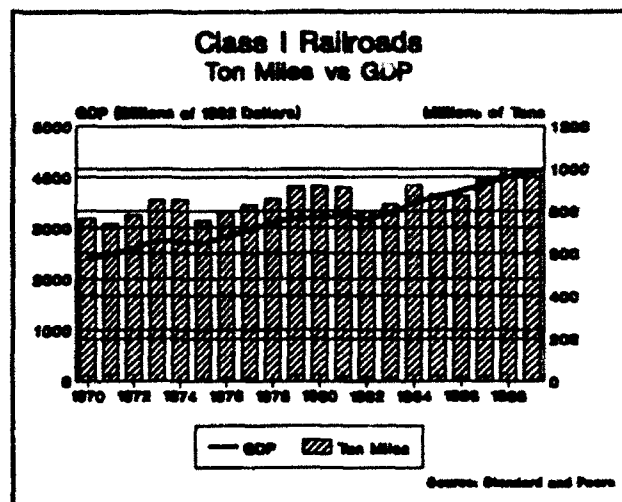


Figure 23

If the class I railroads can sustain this growth, the 1990s' may yet signal a revival of American railroading.

Traffic Load

"Carrying finished automobiles is very different from carrying coal, which is very different from carrying grain."
Former CEO, Class I Railroad

Railroads are combinations of industries. They service a wide variety of commodity markets. Each market has its own unique group of suppliers and customers, traditions and understandings, seasonal fluctuations and market sensitivities. For America's class I railroads to successfully support their clients, they must be conversant in a variety of market languages. They must have the proper equipment to carry the commodities or merchandise to market. They must serve the destinations and customers their clients wish to reach. The railroads must invest in track, loading facilities, and specialized rolling stock to reach the client and connect him with his customers. They must speak the language of their suppliers. The railroads must always be mindful that other rivals, such as truckers, barge operators, and pipeline companies stand ready to lure their clients away.

Within the railroad industry, car loadings are traditionally compared across ten commodities: coal; chemicals; aggregate merchandise; grain; fresh, packaged, and frozen foods; ores, rock, and stone; raw and finished lumber; paper products; finished automobiles and automobile parts; and intermodal containers and trailers. Using 1987 and 1990 as a baseline for comparison, this section itemizes gains and losses by commodity. Since 1991 figures are only available through November 1991, I compared the first 49 weeks annual performance to place the annual trends into perspective.

In 1990, American class I railroads enjoyed record performances.

In spite of depressed economic conditions, 1991 traffic load trailed 1990 statistics by only five percent. Behind the positive car load figures, however, railroad traffic reflected the conditions of the various industrial segments of the economy. Ironically, while American businesses increasingly grapple with the influence of imports, the railroads have benefitted by moving imported goods into the American heartland on intermodal unit trains.

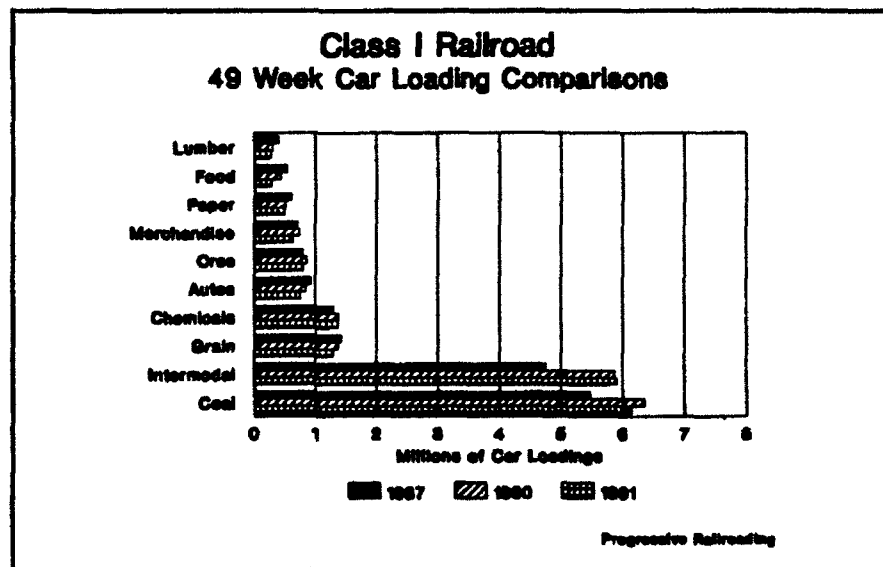


Figure 24

Car Loads vs Operating Revenues. It is important to recognize that car loadings often do not indicate where railroads earn their incomes. Bulk commodities like coal, generate significant tonnage, yet they do not generate income proportionate to the tonnages hauled. The reality is that freight rates are based on the shipper's need to move his goods, the value of the goods, and the availability of transportation. This often goes to the heart of the enmity between the railroad and the trucking industries. Trucking, on a unit cost per ton shipped basis, is a premium mode of transportation. But with trucks, shippers can control when their goods are shipped and

guarantee time and place of delivery to their customers. The test for America's railroads is to capture marketshare in premium payment areas such as agriculture, autos, and mixed freight.¹⁸

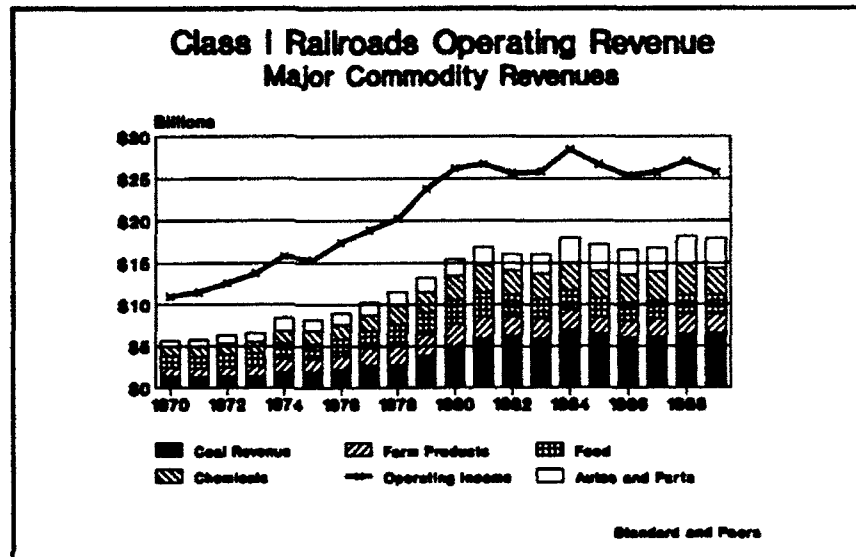


Figure 25

Comparing 1991 Tonnage With 1990 and 1987 Results.

Less than 1990 and Less Than 1987.

Ores. Crushed rock, stone, and sand are key ingredients in the building trade. As highway and commercial office building construction fell during the last three years, movements of bulk ores also fell. Railroaders see promise in the Land Transportation Act of 1991. This act will fund the building and repair of our nation's highway system. Increased construction should encourage the need for crushed rock, stone, and sand.

Aggregate Merchandise. Mixed freight is the most difficult commodity for railroads to handle. Intermodal traffic is often sold as a point-to-point wholesale service, brokered by third party freight forwarders such as the Hub Group. When it comes to mixed freight, especially less than car load amounts, railroads are not competitive with trucks. Trucks offer a shipper more precise control over deliveries and warehouse inventories. Trucks are more flexible, often faster, and more reliable. The railroads, however, haven't given up this market. To beat the truckers at their own game, Norfolk Southern has invested heavily in its "Road Railer" vans. From a distance, these vans look much like regular over the road trailers.

These truck vans, however, have a set of steel wheels stacked between the traditional rubber tires. Norfolk Southern deploys these vans to shippers' loading docks using contract carriers. The vans are then assembled as a unit train and railed to a terminal close to their destination. To date, NS has linked Chicago with Detroit, Fort Wayne, Saint Louis, Cleveland, and Atlanta for "Road Railer" Service. Other carriers are taking a different approach. Santa Fe has developed bonded warehouses at each of its major terminals. Santa Fe offers vendors an opportunity to ship boxcar loads of cargo to major metropolitan areas, warehouse the merchandise in Santa Fe facilities, and tell Santa Fe when to deliver the merchandise to the vendor's customers in the region.¹⁹

Grain. The key to grain rail shipments has always been the availability of clean covered hoppers and the international demand for American grains. A grain shipper's greatest fear is contamination. Grain shippers may reject cars sent to them, but the added delay and the aggravation caused by dirty equipment strains railroad/client relationships. Furthermore, a variety of regional railroads and shortlines service the American grain belt. Grain shippers must often use these lines to interconnect with the Class I railroads. This interconnection frequently slows service, disconnects the shipper from the primary hauler, and leaves the shipper with two bills to reconcile and pay.²⁰

Lumber. According to ICC Freight Commodity Statistics, the lumber and wood product tonnage has fallen steadily since 1970 and revenues have been flat since 1982. The rough and finished lumber industry health suffered during the late '80s and '90s as the construction industry faced hard times. Railroads are introducing new cars especially made to carry prepared lumber and to facilitate the cargo loading and unloading functions.

Paper. We are not yet a paperless community, but we are television addicts. With newspapers shrinking in numbers, domestic demand for newsprint has been declining. Demand for computer paper, however, continues to increase. Like mixed merchandise, however, shippers seldom have the need to move multiple car lots of paper to their customers. To accommodate the industry, Norfolk Southern has taken a page out of the Santa Fe book and established paper distribution centers at its major terminals. Using Norfolk Southern as a warehousing and delivery agent, paper producers ship car loads of paper products to Norfolk Southern depots. Norfolk Southern makes local deliveries when directed by the shipper.

Automobiles. The days of the open car carriers are over. In recent years railroads increasingly lost auto carrying business to trucks. Traditional open sided car carriers were notorious for exposing automobiles to flying ballast. Auto loaders frequently damaged new cars during the loading and unloading process. Importers such as BMW refused to use the railroads. Today, the railroads are winning back the automobile manufacturers. New motor vehicle transport cars are totally enclosed to protect the cars from the elements and flying ballast. New blocking and bracing techniques are preventing motor vehicles from knocking into the interior walls of the transport car. New speed limits in yards and smoother riding track switches are keeping railcars more stable. Loading and unloading personnel are better

trained. According to the Association of American Railroads' Damage Prevention and Freight Claim Section, 1990 freight claims for damaged motor vehicles and auto parts were down 8.7 percent over the previous year. As an added bonus, route improvements to accommodate double stack intermodal freight have made possible triple deck auto carriers.²¹

Less Than 1990 But Better Than 1987.

Chemicals. Most bulk chemicals are moved in the United States by private tank cars. For the railroads this is a captured market. Each year Chemical industry giants, such as DOW and DuPont, recognize the railroad with the best safety record for hazardous material (HAZMAT) cargo.

Coal. Coal traffic is the mainstay of American railroading. Norfolk Southern, CSX, CONRAIL, Union Pacific, and Burlington Northern are all major coal haulers. Coal traffic is destined to utilities, steel producers, or foreign customers. Among domestic coal users, electric utilities out consume steel producers five-to-one. Coal tonnage is often a reflection of the weather. Mild winters and summers mean less business for electric utilities and a weak coal market. During extremely cold winters or hot summers, coal requirements soar. Both 1990 and 1991 were mild weather years. Coal tonnage fell in 1991 as electric utilities worked off stock piles built-up in 1990. Exports to the Pacific rim and to Europe remained strong and kept coal tonnage from falling dramatically. New worldwide environmental awareness and the U.S. Clean Air Act, have teamed to make United States stockpiles of low sulphur, clean burning coal more valuable. To meet the anticipated domestic and worldwide demand, the railroads are investing heavily in aluminum cars. While they cost more than traditional steel cars, they weigh less. With traffic car weights limited to 125 tons, lighter aluminum coal hoppers can carry almost 12% more coal per car.^{22 23}

Better Than 1990 But Less Than 1987.

Food. Fresh, frozen, and processed food is still a minor railroad commodity. Trucking still enjoys a dominating food transportation marketshare. New railroad services, however, are positioning the railroads to become serious players in the food transportation arena. Canadian Pacific is now offering a hybrid truck/rail service to cater to fresh provisions. CP will pick up produce by truck at the farm, consolidate up to three truck loads in one boxcar, transport the boxcar to a major market such as Detroit, reload the produce onto trucks, and deliver the produce to the appropriate wholesale distributor or major retail customer. Meanwhile, CONRAIL has perfected a monitoring system that constantly tracks refrigerated conditions inside reefer cars and reports reefer car environmental status to a central control site via satellite. If the remote monitor senses deteriorating reefer conditions, it signals an emergency call for help.²⁴

Better Than 1990 and 1987.

Intermodal. Intermodal traffic continues to set new records and has come close to dominating American rail traffic. For railroads with minor coal tonnage, such as the Santa Fe, intermodal has become the dominating basis for the railroad's performance. Most intermodal is through freight linking various city pairs. Each railroad is making significant right-of-way improvements to facilitate intermodal freight between various city pairs such as Norfolk-Chicago (Norfolk Southern), Los Angeles-Chicago (Santa Fe), New York City-Chicago (CONRAIL), and Baltimore-Cincinnati (CSX). Most improvements include raising tunnel and signal heights to accommodate 21 foot high double stacked containers.

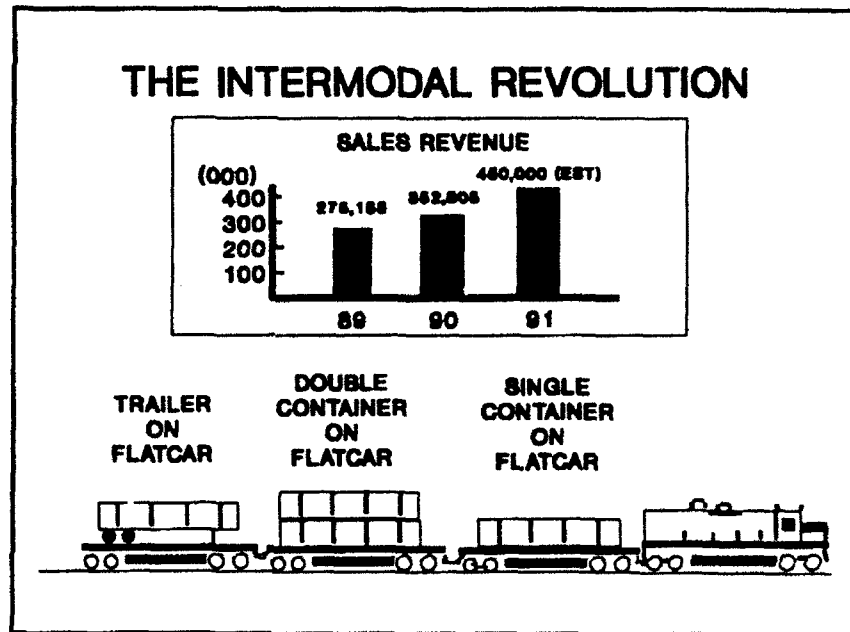


Figure 26

New arrangements are being made between the railroads and motor carriers to link shippers with their customers. Motor carriers take the trailers from the shipper's dock to the railhead. The railroads then move the trailer on a flatcar to the destination hub. There a motor carrier links up with the trailer and brings it to the shipper's customer. ²⁵

Intermodal has also merged railroads with the ports they service and linked their fortunes. New investments in container facilities have permitted ports to move containerized cargo faster from shipboard to railroad flatcars. The railroads then dash the containers inland to new trade areas such as the Port of Chicago or to the free trade zone near Battle Creek, Michigan. There the containers are moved onto trailer beds, clear customs, and then are moved to their ultimate destination. On the east coast, the port of Norfolk, VA and the Norfolk Southern Railroad are linked in competition with the port of Baltimore, MD and CSXT. ²⁶

The challenge for intermodal shippers is to balance the cost of intermodal service with the marketplace value of the service. Unfortunately, there is no profit in moving empty containers around the network. Some railroads have purposely raised the market price beyond what most shippers will pay in order to pull out of unprofitable city-pairs. ²⁷

Labor

"We are pleased to be the first major railroad to achieve this result [3 person crews] solely through collective bargaining. As gratifying as this milestone is, we must remember that many of our trains today can be operated safely and effectively with two-person crews."

CEO, CSXT

"This union must be prepared to energetically fight the high-tech battles of the '90s with every modern weapon in our arsenal, including legislation, litigation, negotiations, and - yes - a strike if necessary"

President, United Transportation Union

As the few remaining American class I railroads consolidated from the remnants of bankrupt railroads, discarded unprofitable routes, and moved into the electronic and computer age, the classic American railroader began to disappear. In 1940, on the eve of World War II, American railroads employed 1,025,000 railroaders. As a group, these railroaders enjoyed some of the best pay scales and benefit packages in the country. Conductors, engineers, firemen, brakemen, locomotive repairmen, pullman attendants, hostlers, maintenance-of-way repairmen, and labors numbered 848 thousand. Another 166 thousand white collar employees worked the professional, sales, and clerical tasks, manned the freight and passenger stations, and produced the blizzard of paper needed to run a modern railroad. Over 11 thousand managerial personnel oversaw the industry. By 1980, blue collar railroaders numbered only 349 thousand; white collar employees totaled 93 thousand; and the executive ranks had swelled to 17 thousand.²⁸

During the '80s, the final coalescence of the industry drew the ranks of American railroaders down to a level

unimaginable only forty years before as personal productivity soared. By 1988 only 243 thousand men and women served in the ranks of American railroader. Of these, 188 thousand still functioned as train crewmen, freight yardmen, equipment repairmen, and track right-of-way maintainers. Only 40 thousand professional and clerical white

collar employees, now working as computer operators, customer service clerks, budget analysts, and traditional secretarial and clerical assistants, remained railroaders. The executive

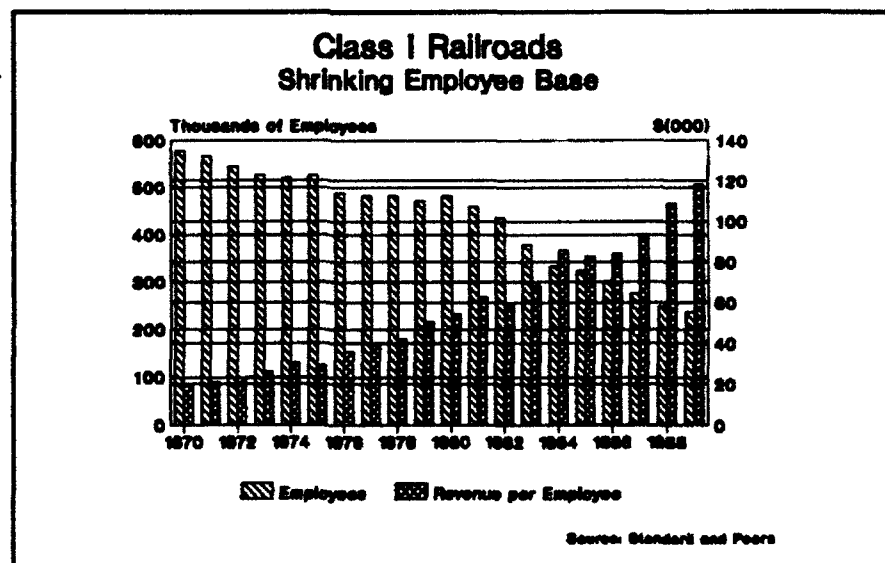


Figure 27

ranks fell back to their 1940 level of 11 thousand.

The labor decline from 1940 to 1988 was not uniform across the trades. With America at war, railroad crewmen and equipment maintainers peaked in 1944 at almost 487 thousand and 389 thousand respectively. In 1945, with the track beds worn by heavy use and the economy returning to a peacetime setting, the ranks of maintenance-of-way laborers peaked at almost 301 thousand; clerical help also hit a high-water mark that year of 231 thousand. Ironically, even as railroads began to disappear by the dozens, executive membership continued to grow until 1982 when it hit its high point of 16,865.

The history of American railroads is also the history of the American labor movement. The Brotherhood of Locomotive Engineers, the first railroad union, formed in 1863. The other ten railroad unions were in place by 1900. Many work rules established during the early days of steam engines still remained on the books in the 1980s'. Faced with financial catastrophe, bankruptcy, and ruin in the 1980s', the remaining railroads took on the unions to break the work rules. The railroads argued that technologically sophisticated trains needed only one operator. By the 1988 collective bargaining season, the chaotic merger decade had left many collective bargaining agreements on the books that were at odds with each other. For example, the Burlington Northern Railroad faced 35 bargaining units from the eleven major unions. These negotiating units took various positions at the bargaining table and interfered with each other.²⁹

Through 1988, 1989, and on into 1990 the carriers continued to claim that many of their employees were unproductive and overpaid. They unsuccessfully pressed for labor concessions, especially on train crew sizes, and work rule changes. The railroads held that ICC approved mergers had exempted the carriers from their earlier collective bargaining agreements. Unions faced a divided membership. Younger employees were more willing to accept change. Older employees – the BLE membership averaged 40 years old – wanted job and retirement rights protection. Strike fever ran high but the Iraqi invasion of Kuwait focused the nation on a serious foreign threat and the unions delayed shutting down the railroads. In late 1990 the President commissioned a Presidential Executive Board under the Railway Labor Act to recommend a solution to the railroad crisis.

1991 was not a good year for the railroad unions. In January 1991, PEB 219 reported back to the President in favor of binding arbitration and the appropriateness of work rule revisions. The President of the Brotherhood of Locomotive Engineers announced that: *"The PEB made recommendations that were just plain unfair to locomotive engineers."*³⁰ Some unions took the railroads to court. The American Train Dispatchers Association sued the Norfolk and Western and The Brotherhood of Railway Carmen sued the CSX Transportation Company. The Supreme Court finally settled the question of whether the railroads had the right to disregard prior agreements made before the railroads' mergers. On March 19, 1991, Justice Kennedy, writing for the 7-2 majority, held that *"the obligation imposed by the law that gives force to the carriers' collective-bargaining agreements, the Railway Labor Act, does not*

survive the merger in this case....the RLA is the law that...is superseded when an ICC approved transaction requires abrogation of collective-bargaining obligations." ³¹

Unable to reach agreements through collective bargaining, frustrated by the PEB 219 report, and now rejected by the Supreme Court, the union leadership faced intense pressure from the rank and file. By April 1991, with Operation Desert Storm complete, the unions pressed for a strike. Some unions, like the Brotherhood of Locomotive Engineers, lobbied for a rolling strike - hitting one carrier at a time or different regions of a carrier's national network. Others, led by the United Transportation Union argued that only a massive, system-wide strike could bring national attention to their dispute. On April 17, 1991, the eleven unions collectively struck the class I railroads.³²

The strike was a failure. The administration quickly moved a joint resolution through Congress and on April 18th the President, with congressional support, ordered the striking railroaders back to work. Under terms of the resolution, the President appointed a 3 person "Special Board" to review PEB 219 recommendations that had not led to agreements between the carriers and the unions and to clarify issues raised by either side.

Reporting out in May, the Special Board upheld the PEB recommendations that the railroads negotiate crew sizes locally. The ruling also required the parties to reach agreements by the end of 1991 or face binding arbitration. No national negotiations would be possible until 1995.

The shock waves through the railroad unions carried away union leadership. At their annual conventions, the rank and file voted out the presidents of the Brotherhood of Maintenance-of-Way Employees, the Transportation Communications Union, the Brotherhood of Locomotive Engineers and the United Transportation Union.³³

Through the balance of 1991, unions and carriers scrambled to close agreement on a variety of issues. In the end, the carriers won their prize of smaller three or two man engine crews and longer work mile assignments. Unions won protection for their membership by agreeing to accept sizeable voluntary severance settlements - \$50,000 to \$60,000 depending on the railroad - and an allowance for placing membership in a reserve status at 75% pay for certain periods of time - usually three years - for those members who did not wish to accept a severance check. Most carriers took right-offs in the fourth quarter of 1991 to cover the severance and reserve pay charges. The right-offs were permitted as the railroads saw the labor buy-out charges as capital investments that would benefit the carriers in the long term.³⁴

Safety

"I immediately put the train in emergency and began blowing the horn like crazy. We [the crew] were yelling and screaming and trying to shoo them off the track, but we couldn't get stopped. The little girl and boy - they were both 2 years old - were standing up, smiling and waving and looking up at me just before the train went over them. It was awful."

BN Engineer

Railroad executives claim that railroading is not inherently dangerous work, but they agree that railroading is very unforgiving. Railroad accidents can not only deprive a valued employee of his health and even his life, but can endanger both the communities served by the railroad and those positioned along a railroad's right-of-way.

Railroad safety, therefore, must be examined on three levels: unsafe working environments or confusing work rules, grade crossing collisions between trains and motor vehicles, and property or environmental damage caused by hazardous material spills or mishandling.

In each category the industry's record is one of continuous improvement. According to Federal Railroad Administration statistics, Norfolk Southern is the undisputed safety leader.³⁵

Industry Safety Standings (Fewest Personal Injuries)

1989	1990	1991
Norfolk Southern	Norfolk Southern	Norfolk Southern
AMTRAK	CSXT	CSXT
Southern Pacific	AMTRAK	AMTRAK
Chicago Northwestern	CONRAIL	Santa Fe
Santa Fe	Chicago Northwestern	Southern Pacific
CONRAIL	Santa Fe	CONRAIL
CSXT	Southern Pacific	Union Pacific
Union Pacific	Union Pacific	Burlington Northern
Burlington Northern	Burlington Northern	

Statistics for grade crossing accidents posted continuous improvements from 1989 through 1991. In 1990, the Federal Railroad Administration compiled 5,663 cross accident reports. This was down 15% from 1989. Statistics for 1991, while not completely available, indicated a strong improvement over 1991.³⁶

In 1990, the FRA reported 466 hazardous material accidents - down from 819 in 1980. The 466 accidents involved 236 chemical car derailments or serious damage. Only 35 cars released their contents due to derailments but another 90 released their contents due to mishandling. In 1990, Norfolk Southern and CONRAIL shared an award from DOW Chemical for safe, accident free handling of that company's shipments during that year.³⁷

Performance

Financial Analysis

This section examines the basic financial data available on the Class I American "Big Five" Railroads: Burlington Northern, CONRAIL, CSX Transportation, Norfolk Southern, and Union Pacific. The analysis will appraise the railroads' relative riskiness, profit potential, and general management performance. The data below has been taken from annual reports and from security management information services such as Value Line and Moodys. As a precaution, the reader must understand that while this section will report what happened to earnings and profits, it can not explain in every case why things turned out the way they did. I challenge the reader, therefore, to pursue a more focused study of each railroad to form his or her own expectations on the financial future of each railroad.

Performance Ratio. Any enterprise must be able to keep expenses below operating revenue. Within the railroad industry, the Performance Ratio is the common measurement of profitability.

Performance Ratio. This ratio measures railway operating expenses as a percentage of operating revenue.

Performance Ratio (Railway Expenses / Railway Revenue)

	BN	CR	CSXT	NS	UP
1990	.87	.87	.64	.78	.81
1989	.85	.94	.86	.78	.83
1988	.85	.86	.99	.74	.81

Preliminary figures show that Norfolk Southern regained its performance leadership in 1991. In contrast to the major freight railroads, AMTRAK, the nation's passenger railroad, has been able to only cover 70% of its operating expenses with ticket revenue. This level of efficiency is one of the world's best among state supported railroads, but gives AMTRAK a 1.48 performance ratio.

Liquidity Ratios. Any company must be able to meet its maturing obligations. The Current and Quick Ratios are often used to judge a firm's ability to pay its bills.

Current Ratio. This ratio of the firm's current assets to its liabilities gives a clear view of a firm's ability to pay its bills. Current assets are convertible to cash and must be available to pay current payables and interest coming due on bonds and loans.

Current Ratio (Current Assets / Current Liabilities)

	BN	CR	CSXT	NS	UP
1991 June	.53	.77	.77	1.3	.70
1990	.56	.80	.75	1.06	.67
1989	.66	1.14	.59	1.60	.64
1987 Industry Average			1.14		
1981 Industry Average			1.21		

Quick Ratio. This ratio recognizes that firms can not use their supplies and inventories to pay their bills. The values of the supplies and inventories are deducted from current assets to discount the value of the supplies and inventories.

Quick Ratio (Current Assets - Inventories) / Current Liabilities

	BN	CR	CSXT	NS	UP
1991 June	.44	.64	.60	1.2	.60
1990	.45	.67	.64	.99	.54
1989	.55	1.01	.49	1.54	.53
1987 Industry Average			1.02		
1981 Industry Average			1.00		

Asset Management Ratios. How effectively does the firm manage its assets? I used three measures to answer this question:

Average Collection Period. This method divides annual sales by 360 to average daily sales. The amount of accounts receivable is then divided by average daily sales to assess how many days sales are uncollected. The lower the number, the better the company converts sales to cash. If the number increases, it may show that the firm's customers are having difficulty paying their bills on time. More often in the railroad industry, a delayed bill collection is often the result of customers rejecting railroad bills as inaccurate.

Average Collection Period In Days (Accounts Receivable/ Daily Sales)

	BN	CR	CSXT	NS	UP
1991 June
1990	28	59	36	69	28
1989	34	57	28	70	27
1987 Industry Average			60		

Fixed Asset Utilization. The ratio of sales to the value of the depreciated plant equipment measures the capacity to which a firm uses its fixed assets to generate income. Railroads are asset intensive with miles of track, track beds and right-of-way, millions of dollars in locomotives and rolling stock, and millions of dollars invested in repair and system control facilities.

Fixed Asset Utilization (Sales / Plant Equipment)

	BN	CR	CSXT	NS	UP
1991 June	.	.52	.52	.34	.
1990	.88	.56	.56	.50	.57
1989	.87	.57	.56	.50	.57
1987 Industry Average			.60		

Total Asset Utilization. Is the company generating a sufficient volume of business for the size of the assets invested? That is the nagging question facing any business. The ratio of sales to the value of all assets signals the utilization of the firm's assets to the goal of making a profit. A low number against the average would suggest that a company should raise sales or disposed of underutilized assets.

Total Asset Utilization (Sales / All Assets)

	BN	CR	CSXT	NS	UP
1991 June	.71	.42	.45	.43	
1990	.73	.47	.48	.40	.48
1989	.67	.46	.48	.38	.48
1987 Industry Average			.48		

Debt Management. How much do railroads use borrowed funds to finance their operations? During times of recession, firms with low debt levels have less risk than those which must depend on raising cash to operate. Debt management highlights a firm's vulnerability to interest rate fluxuations.

Total Debt to Total Assets. To compare the major railroads, I used the total debt to total asset ratios to determine the reliance on debt. A low number against the average indicates a lower reliance on debt.

Total Asset Utilization (Total Debt / Total Assets)

	BN	CR	CSXT	NS	UP
1991 June	.36	.37	.23	.26	
1990	.38	.38	.24	.18	.17
1989	.38	.26	.25	.23	.19
1987 Industry Average			.30		

Times Interest Earned. This ratio compares the company's earnings before interest and taxes to the annual interest charges facing the firm. A low ratio could signal that the company may be unable to pay its debt service if sales fall.

Times Interest Earned (Earnings Before Interest and Taxes / Total Interest Charges)

	BN	CR	CSXT	NS	UP
1991 June	4.89	2.28	5.77	16.58	
1990	4.36	2.64	5.60	10.59	5.60
1989	3.79	2.84	4.07	12.19	5.51
1987 Industry Average			4.35		

Profitability. A railroad is in business to make money. Profitability ratios show how liquidity, asset management, and debt management affect operations. I used two common ratios to compare one railroad against the others.

Profit Margin on Sales. This ratio compares the net profit after taxes are paid to the total sales value.

Profit Margin On Sales (Profit After Taxes / Total Sales)

	BN	CR	CSXT	NS	UP
1991 June	.19	.070	.061	.147	
1990	.063	.073	.076	.159	.116
1989	.071	.043	.068	.168	.122
1987 Industry Average			.08		

Return on Total Assets. This ratio compares the net profit after taxes are paid to the total assets of the firm.

Return on Total Assets (Profit After Taxes / Total Sales)

	BN	CR	CSXT	NS	UP
1991 June	.137	.022	.028	.063	
1990	.047	.034	.036	.064	.056
1989	.050	.02	.032	.06	.059
1987 Industry Average			.04		

Conclusion

This paper briefly reviewed the history, achievements, and financial performance of the American Class I Railroads. Much more has yet to be said about the challenges facing the railroads in the coming decade, the roles they play in support of our national defense, and the possible effects of international economic competition and technological advancements on their development. It is my hope that this primer will serve its purpose of preparing the ICAF Railroading and Trucking Defense Industry Study Team to answer the bigger questions.

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